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A Contribution to the Study of
Chorea Laryngis.

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A CONTRIBUTION TO THE STUDY OF CHOREA LARYNGIS.*

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THERE is about chorea laryngis, as an independent affection, a vagueness and uncertainty which has attached to its prototype for more than four centuries. Chorea is, in fact, a term convenient but unfortunate; of dubious parentage, of uncertain application, and of unestablished pathology. There is, therefore, about almost any case room for two opinions, and I premise my remarks by the statement that the one now presented is not fully covered by the term chorea laryngis, although at one stage of its progress it would have been styled by an observer a typical case. The spastic inco-ordination, or inequipollence of muscular action, the insanity (as Watson has called it) of the muscles, was well marked, and particularly was the resemblance to ordinary chorea emphatic, in that the perturbation of motion was present without voluntary effort at phonation as well as during the attempt. The antecedent history of the patient gives the case a significance which I trust will justify its selection as a subject.

* Read before the American Laryngological Association, May 14, 1884.

Dr. S., a physician, fifty-seven years of age, of healthful appearance, and of vigor sufficient, up to this attack, to carry a large practice, the personal management of a great number of rented houses owned and acquired by his profession, an active member of the City Aqueduct Board, and at the same time manager of a flourishing drug business (all of which are mentioned as bearing on the case), noticed, January 1, 1883, a gradually increasing dysphonia, and in two weeks became completely aphonic, without cough, difficulty of swallowing, or pain.

The first note on my record, made January 15th, two weeks after the first symptom, states: "pulse weak and small, posterior surface of epiglottis and anterior wall of larynx subacutely inflamed, all other parts of larynx normal." Four days later, under treatment, the inflammation had almost subsided, but a loss of power in the tensors of the cords was well marked. On the 22d this impairment was less notable, but the inflammation had returned, painless but bright in color, and with a margin as defined as is seen in erysipelas or erythema, still confined to the anterior wall and epiglottis, which were hyperæsthetic, and suggested herpes of the mucous membrane. There was some general debility. Twenty-two days from the first aphonia, examination showed irregular choreic inco-ordination clearly and singularly marked without effort at phonation, slightly quieted by an attempt to speak, but increased upon prolonged effort, hyperæmia gone, and the various parts of the larynx of normal appearance. Dysphonia now well marked, as might be expected, but at this time no phonetic spasm.

This condition persisted for several weeks, and for how much longer I am unable to say, as the doctor went to the seaside and subsequently to the mountains, and passed for a few months from observation; but, for the several weeks mentioned, the laryngoscopic appearances were singularly suggestive of the general chorea as seen in young people at puberty, especially as regards the irregular action when no volitional effort was directed to the parts.

The thyro-arytenoids, the arytenoids, and the crico-arytenoids seemed endowed with independent life, twitching and starting in a most erratic manner. There was no peculiar

cough, barking or stridulous, for there was not sufficient co-ordination to produce these, nor was the patient conscious of this choreic condition, the inability to speak aloud being the only inconvenience.

In this there was no change at any of the localities visited, although the general health was manifestly improved; nor was there outward evidence of change for a year from the incipency of the trouble.

At this time, January, 1884, the choreic incoordination had disappeared. There was still aphonia, and, although there was no actual paralysis, the tensors were evidently weak, and the laryngeal mucous membrane was of somewhat diminished sensitiveness.

This weakness was progressive and, in March of the present, year, fifteen months after the beginning of the trouble, in spite of a variety of treatment, there was paresis of the thyro-arytenoids and spasm of the lateral crico-arytenoids.

At this stage he was examined, at my request, by Dr. Elsberg and Dr. Lefferts, as he manifested the singular phenomenon of *inspiratory phonation*. Only with great effort and pain could he form a single syllable on expiration, and his efforts to do so while under examination by the gentlemen named, combined, perhaps, with exposure to cold, produced so great exhaustion as to confine him to his room for nine days, at which time he took passage for Florida.

Omitting, for the sake of brevity, all unimportant features, I would state that, when examined on his return on the second of the present month, the following condition existed:

Slight redness of vocal bands, no paralysis, but upon protracted effort at phonation a tendency to spasm of the lateral crico-arytenoids. Phonation in a low tone, good for a few sentences only, then dysphonia, with tendency to facilitate respiration by elevating the arms over the head. General condition good; no cough. Careful examination of the thorax showed no evidence of aneurysm, enlarged glands, or cardiac disease, and a high-pitched percussion note and impaired respiratory sounds at the apex of the lung, formerly the seat of disease, were the only morbid or abnormal conditions.

There has been at times, however, a pain in the spine opposite the ganglion of Wrisberg, and also in the epigastrium, which seemed suggestive in connection with the tendency to elevate the arms already mentioned.

No evidence or suspicion of central cerebral disturbance. *A most important feature is this: In a dry, clear, elevated atmosphere all symptoms disappear.*

The previous history is important. On several occasions during the past twenty years the health has been impaired by overwork. The first attack that came to my notice was an apex pneumonia with hæmoptysis, not severe, but accompanied by the usual symptoms, and complete recovery with adhesions.

About ten years ago he had a prolonged and violent attack of the trouble originally well described by Da Costa as "irritable heart." For several days this was mistaken for endo-pericarditis, but sphygmographic observations, with careful physical examinations, eliminated the inflammatory element, and the affection was defined and ascribed with probable correctness to the inordinate use of quinine (twenty grains daily for six months) just prior to the attack. The action of the heart for several weeks was arrhythmic and irregular, and corresponded to the description of cardiac chorea spoken of by some authors, but which seemed to me more correctly to be defined as "irritable heart."

Now, in reviewing this case, we have in a man past middle life a laryngeal hyperæmia and hyperæsthesia; a gradually developed inco-ordination peculiarly choreic, in that there was a long-continued insanity of the muscles persistent even without effort at phonation, slowly resulting in paralysis of one set of muscles and spastic contraction of another, the latter, as you are aware, being one of the possible results of long-continued chorea.

We even have the suspicion of cardiac disease so frequently connected with chorea, to which such manifestations have by some authors been ascribed.

Nor is the theory of Hughlings Jackson as to the pathology of chorea (the plugging of the vessels that supply the

corpora striata) to be lost sight of in this connection, since we might well suppose lesion of the kinesodic tracts a factor in producing the paresis and spasm of muscle here exhibited.

More plausible still is the idea of chorea in connection with the views of Dr. Dickinson, with whose valuable paper, read in 1875 before the Medico-chirurgical Society, you are doubtless familiar. I beg leave to quote: "Post-mortem observations show a general tendency to dilatation of the smaller vessels, especially the arteries throughout the substance of the brain and cord, attended with exudation into surrounding tissues, in some cases patches of sclerosis, and in some small hæmorrhages most advanced in the corpora striata." His conclusion is that chorea depends on a widely spread hyperæmia of the nervous structures, and that the subsequent paralysis is explained by the tendency to sclerosis, a condition not unreasonably to be inferred in this case from the patient's history.

We are also reminded, by the localized herpetic hyperæmia of the larynx which accompanied and probably preceded the choreic disturbance, of the superficial spinal reflexes which cause contraction of special muscles when the cord is healthy, and which, when the irritation is prolonged, may produce irregular action.

With all this, however, it is manifest that we should not clearly define the case by the term chorea laryngis, except in so far as it describes a condition grafted upon some other affection of the system, using the term precisely as we use the words aphonia, cyanosis, or anæmia.

In all cases of persistent and irregular action of the laryngeal muscles, irritation is an essential factor; but in our search for a cause we are not so restricted as in a general chorea, inasmuch as the anatomical nervous structure of the supply, while complex, is restricted in area.

Theoretically, the irritation should be either at the origin of or at some point in the distribution of the pneumogastric nerve, or in the course of its branches; and, as experience has demonstrated that most of the motor perversions from such irritation are symmetrical, we have the multitude of peculiar coughs, clonic spasms, or aphonias, and but few evidences of inco-ordinate action essential to chorea. If central, as from minute emboli, effusion, or hyperæmia, we should be quite likely to have development of symptoms at the ultimate distribution of the pneumogastries, the heart, the lungs, or the stomach. If originating in the mucous membrane of the larynx, the apices of the lungs, the glandular structures which might press upon the laryngeal nerves, the stomach, or the heart, the motor distribution through the laryngeal nerves might alone be affected.

If we accept either of the prominent theories of Dickin-son, Hughlings Jackson, or Brown-Séquard, as to chorea, the character of the central lesion could hardly affect alone the distribution of the laryngeal motor nerves, and in any given case, therefore, we should give preference to the belief that the trouble was reflex. In most cases, indeed, we should be justified in giving preference to a proximate and superficial, and not a remote or deep reflex, since in the latter case, as in enlargement of bronchial glands, aneurysm, cardiac hypertrophy, etc., we have a grosser irritation and the familiar short cough, or the not infrequent aphonia with no inco-ordinate action.

In reviewing a considerable experience with cases of chorea, I have been struck with the variety of localized choreic manifestations—for example, of the trapezius of one side; of the eyelids of one side; of groups of or single muscles in an arm or leg, on the thorax or abdomen; in boys and girls at puberty, in the levatores and tensores palati, where the contraction gives rise to the production of

strange guttural noises; but in all these there has been either organic change, or the general condition and aspect of the patient have been suggestive of such trophic disturbance as justified the term chorea, and this in direct proportion to the avolitional character of the muscular motion.

Inco-ordination occurring when the will is directed to the parts suggests that still more indefinite affection—hysteria, or the lesion of sclerosis, where, indeed, the distinctive peculiarity is incoordination *only* upon volitional effort.

In any chorea we expect a lowered state of the nervous system, the absence of a direct irritant (for the convulsive twitching of the muscles of the shoulder from a bullet imbedded in the palm while choreic is certainly not chorea), and a choreic condition or tendency which would be manifested at times in other parts of the body; and to apply the term to a laryngeal inequipoise we might well proceed as in general chorea.

In the one case we eliminate the saltatory phenomena as belonging to emotional insanity or hysteria—the electric chorea of Dubini, the myelitis convulsion of Hörstel, the tarantism of the sixteenth century, and the tigretier of Abyssinia—as phenomenal, although choreic exhibitions of hysteria, and also the countless movements from the uncontrollable gigglings and grimaces most familiar, to the jerks and starts of the epileptic which have been included under the name.

In chorea laryngis we can, without violence, in a similar way eliminate most of the peculiar barking coughs often hysterically contagious—the asynergy of Krishaber common in laryngeal tumors, the spasmodic laryngeal cough arising in subacute laryngitis upon change of position, the laryngismus of tubercular meningitis or effusion, the reflex spasm from goitre, and a multitude of temporary phenomena often conveniently termed chorea laryngis—and approximate the

definition of a doubtful term as "a morbid manifestation or condition with two essential qualities":

1. Ability to produce, but inability to protract, co-ordinate action.
2. Irregular and unequal action, without as well as with volition.

These may arise from either of three sources:

1. A choreic temperament and condition, with tendency to manifestation in other groups of muscles—i. e., a localized manifestation of general chorea.
2. A trophic impairment developed in the course of some other affection or disease.
3. Irritation of the laryngeal mucous membrane, or of the terminal filaments of the pneumogastrics—the one a superficial, the other a deep reflex.

To either, and, perhaps, to both the latter, the case to-day presented belongs—a chorea laryngis, yet presenting the idea of a symptom only, instead of a distinct disease.

Still, I do not believe with Massei that we should discard the term because it describes a condition and not a disease. Asthma is not the less a veritable affection because the term is misapplied to cardiac or gastric dyspnœa, to pulmonary œdema, bronchitis, or aneurysm; and chorea laryngis, while, like its prototype, most frequently a functional and symptomatic disorder demands nevertheless a name, and we will accomplish much if we secure for it correctness of application.

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